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(54) Title: APOPTOSIS-BASED EVALUATION OF CHEMOSENSITIVITY IN CANCER PATIENTS

(57) Abstract: Induction of apoptosis in target cells is a key mechanism by which chemotherapy induces cell killing. An *in vitro* system has been established for determining carboplatin and paclitaxel (Taxol) chemosensitivity of epithelial ovarian cancer cells, where measurements of caspase-3 activation are surrogate markers for activation of chemotherapy-induced programmed cell death. To validate the assay as a predictor of clinical chemotherapy-induced programmed cell death. To validate the assay as a predictor of clinical chemosensitivity *in vitro* apoptotic response were compared to the clinical response of the patients from whom the tumor cells were isolated. Caspase-3 activation in response to *in vitro* chemotherapy to both drugs was shown to have an 83 % positive predictive value and a 71 % negative predictive value. Markers of apoptosis such as caspase-3 activation can be quantitated and utilized to predict the clinical response to chemotherapy.

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